

The Next Wave of x86 Innovation

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Agenda

What's next for AMD64

Future design directions

Next-generation desktop and server architecture

New mobile core

Powering the next wave of x86 innovation

Creating a new era in AMD64 platform innovation using an open, partnership based approach

AMD's strategic technology initiative code-named *Torrenza*



Our Goal: Create the Best Customer Experience with the Highest Possible Value

Software

Application optimization for overall productivity and satisfaction improvements

Architecture

Direct connect: unlocking the true potential of multi-core

Process

Fast, small, power-efficient submicron structures

Manufacturing

Production speed, accuracy and agility



The right solutions delivered at the right time.

Collaboration

Better Customer Experience

Customers and End-Users

Collaboration



Fab 36: Highly Successful Ramp and 65nm Conversion On-Track

Solid plans for increasing Dresden capacity by up to 4x in next three years

65nm production shipments scheduled for 4Q 2006

Expect mid-2008 45nm introduction

Taking our unique manufacturing advantage to the next level - Lean Manufacturing

Fully positioned to service 1/3 of the market by 2008

AMD Fab 36

AMD Fab 30/38



AMD Design Priorities at the Chip and Platform Levels

Continued Performance and Power Efficiency Improvements

Balance of single thread vs. multiple thread performance

Enable high performance on diverse workloads

Easy/rapid tailoring of designs to market needs

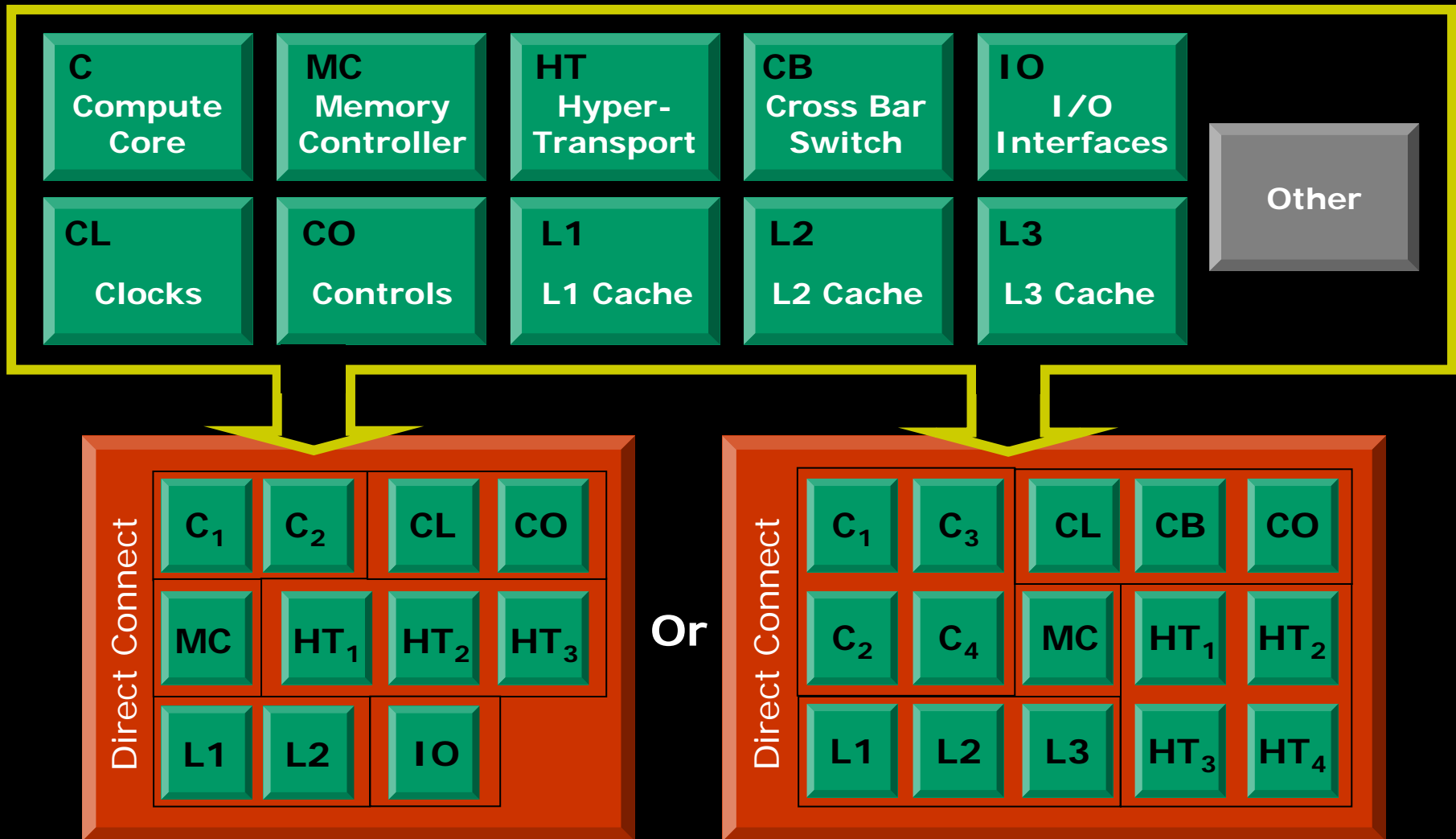
The right technologies at the right time

Parallel design efforts

Constant customer review of our directions



Modular Design Focus for Fast Development Cycles, Highly Tailored Solutions



Powering the Next Generation of AMD64 Leadership

New Architecture for Servers and Desktops

Server/Desktop

Desktop

Quad-Core

Dual-Core

Mid-2007 introduction

Performance-per-watt leadership

Scalable performance and balance

Platform compatibility

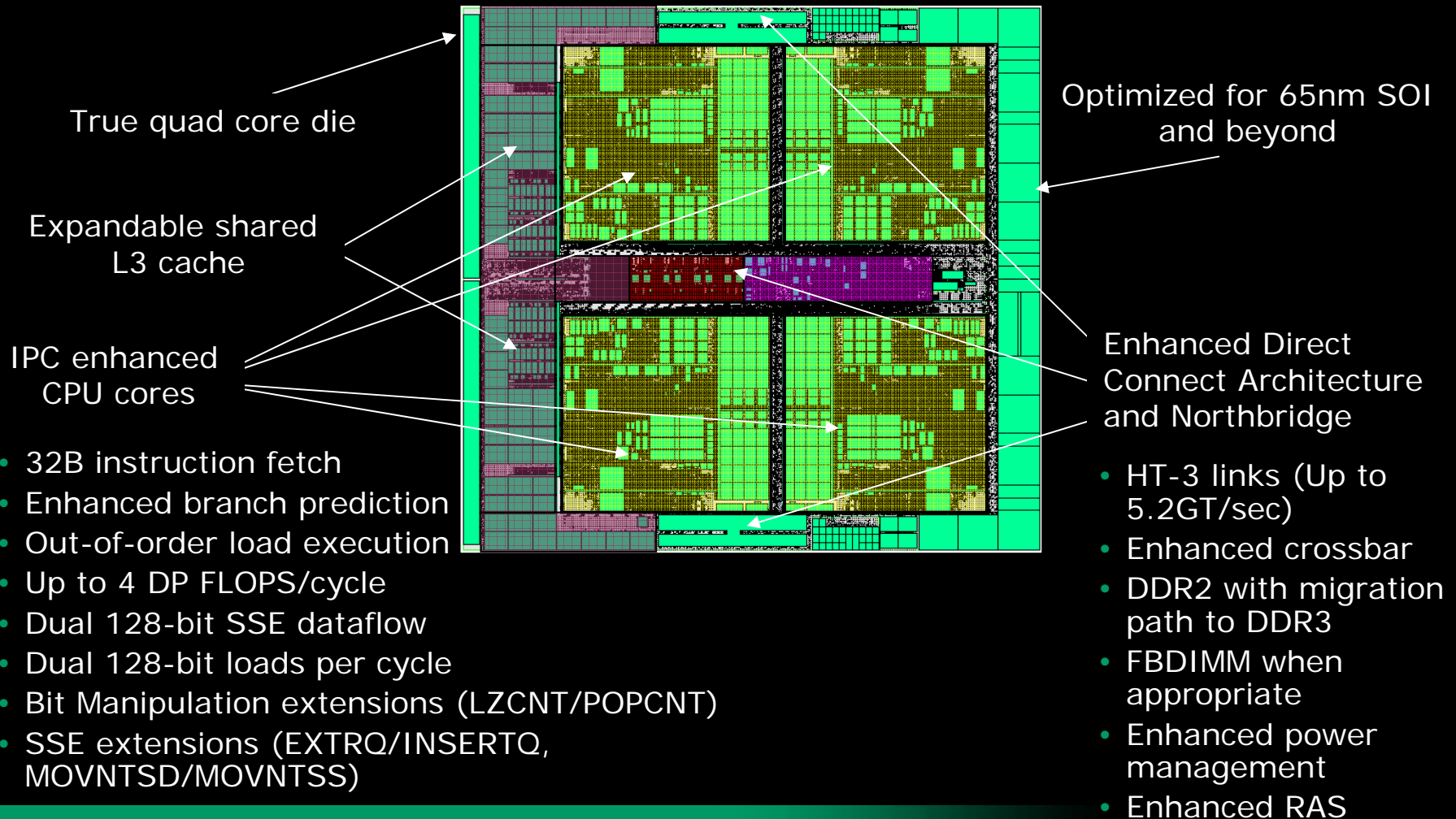
Performance on diverse workloads

Enhanced RAS

Enhanced virtualization

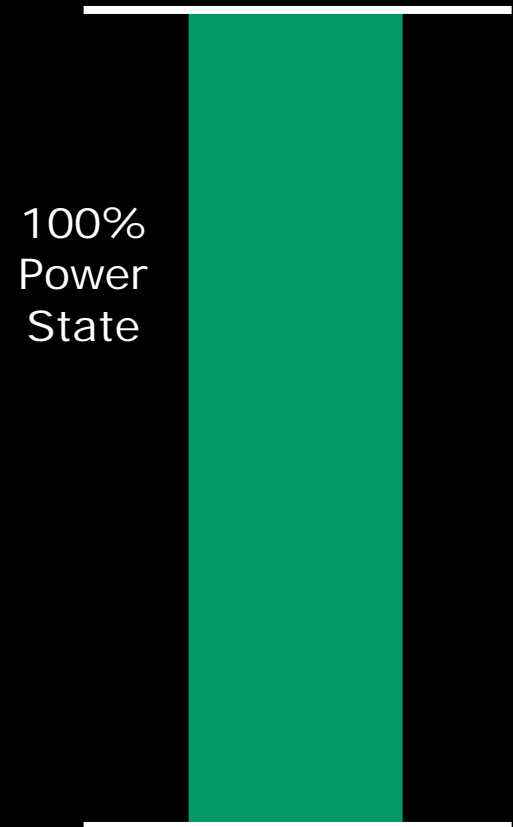
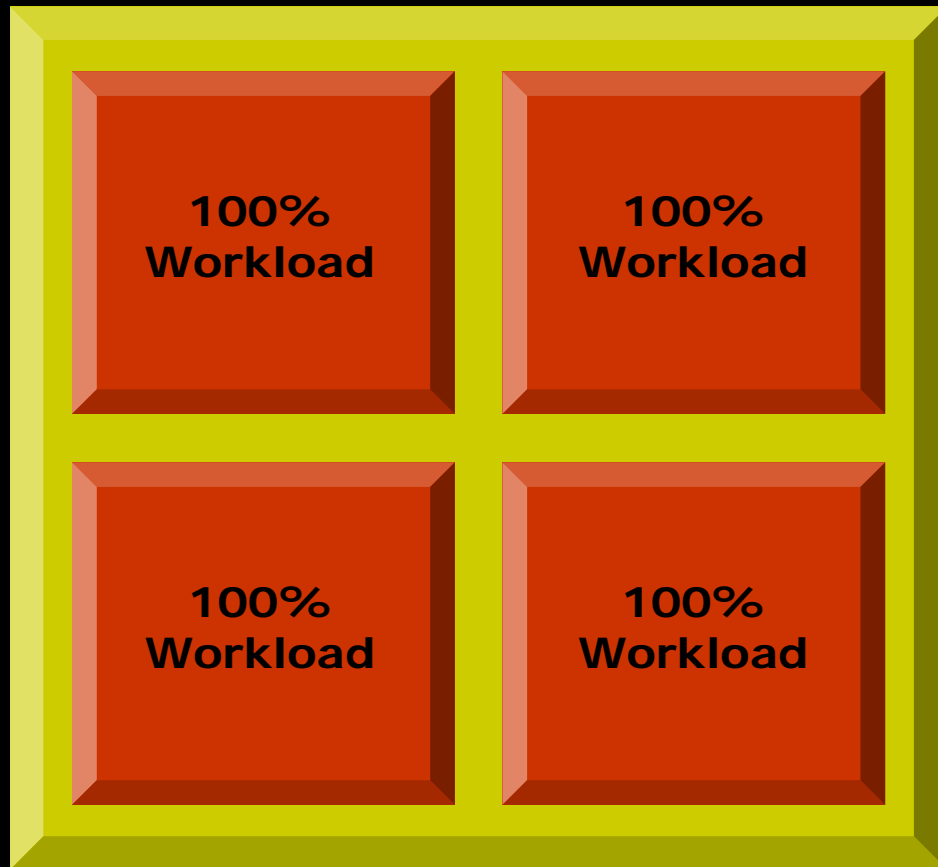


A Closer Look at AMD's Next Generation Server and Desktop Architecture



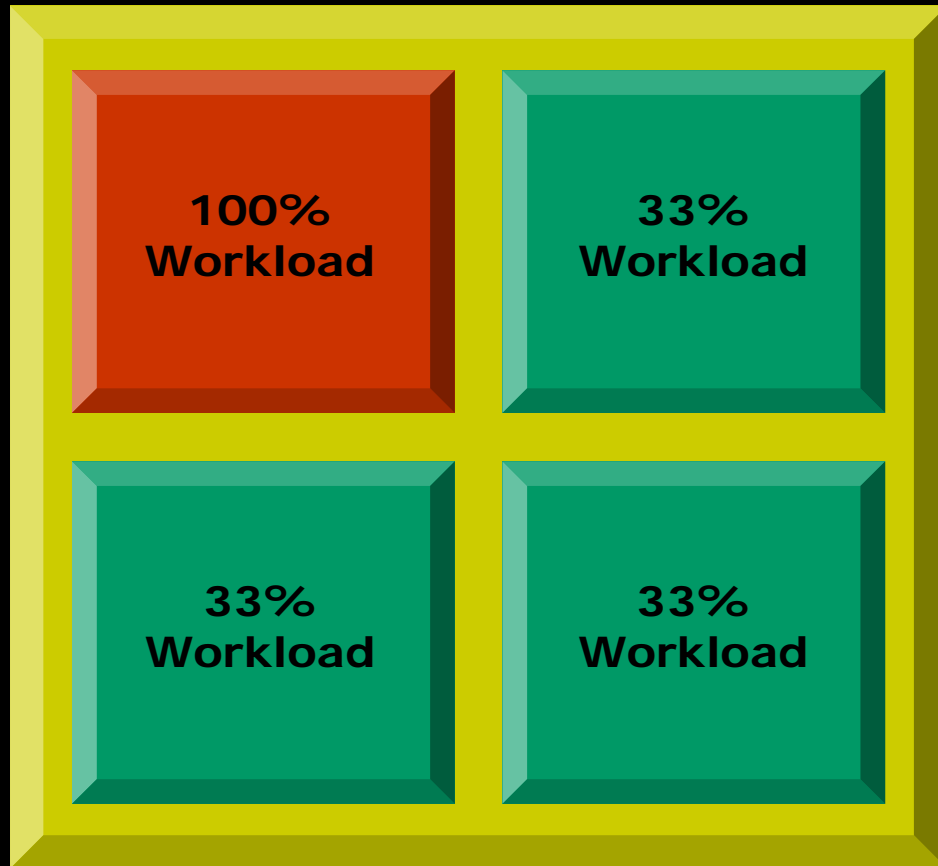
DICE: Dynamic Independent Core Engagement

Ability to dynamically and individually adjust core frequencies for improved power efficiency



DICE: Dynamic Independent Core Engagement

Ability to dynamically and individually adjust core frequencies for improved power efficiency

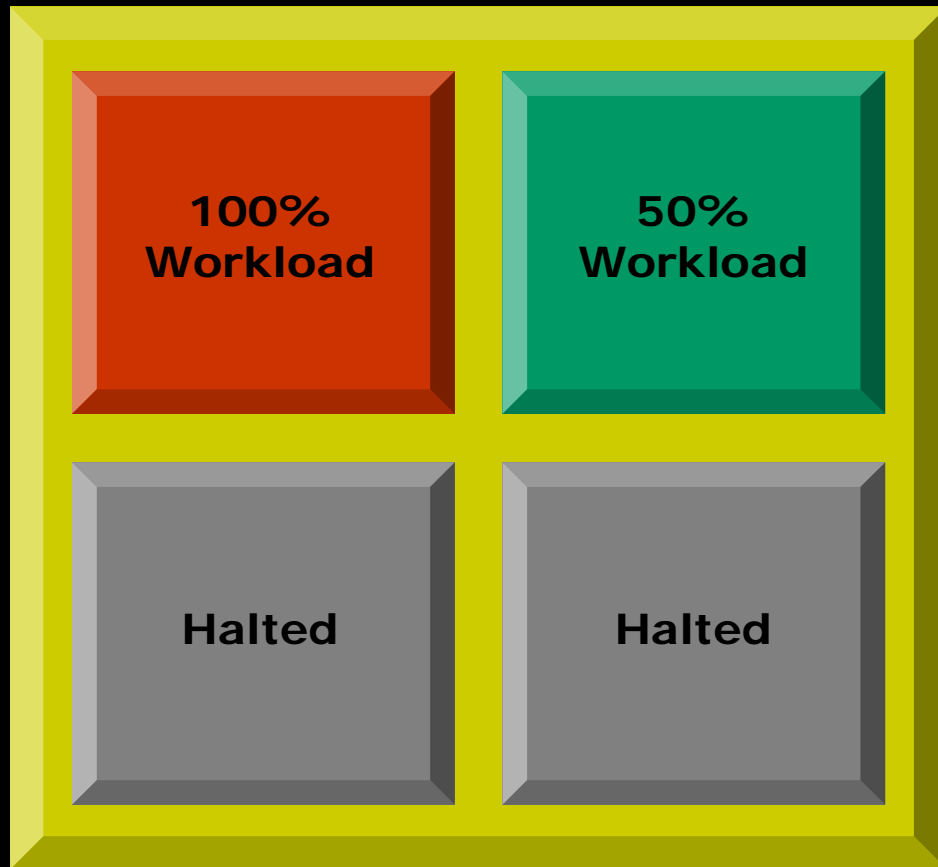


60%
Power
State

A single teal bar representing the power state, positioned below the text '60% Power State' and above a horizontal line.

DICE: Dynamic Independent Core Engagement

Ability to dynamically and individually adjust core frequencies for improved power efficiency



45%
Power
State



Continuing Leadership in Platform Performance and Power Efficiency

Performance-per-Watt



2006

2007

~60%
increase

2008

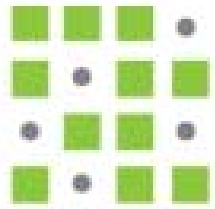
~150%
increase

Performance projections based on modeling and a baseline of 2006 performance

Source: AMD planned



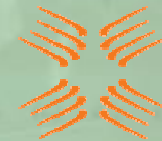
Taking Global Action on Customer Energy Use



the green grid



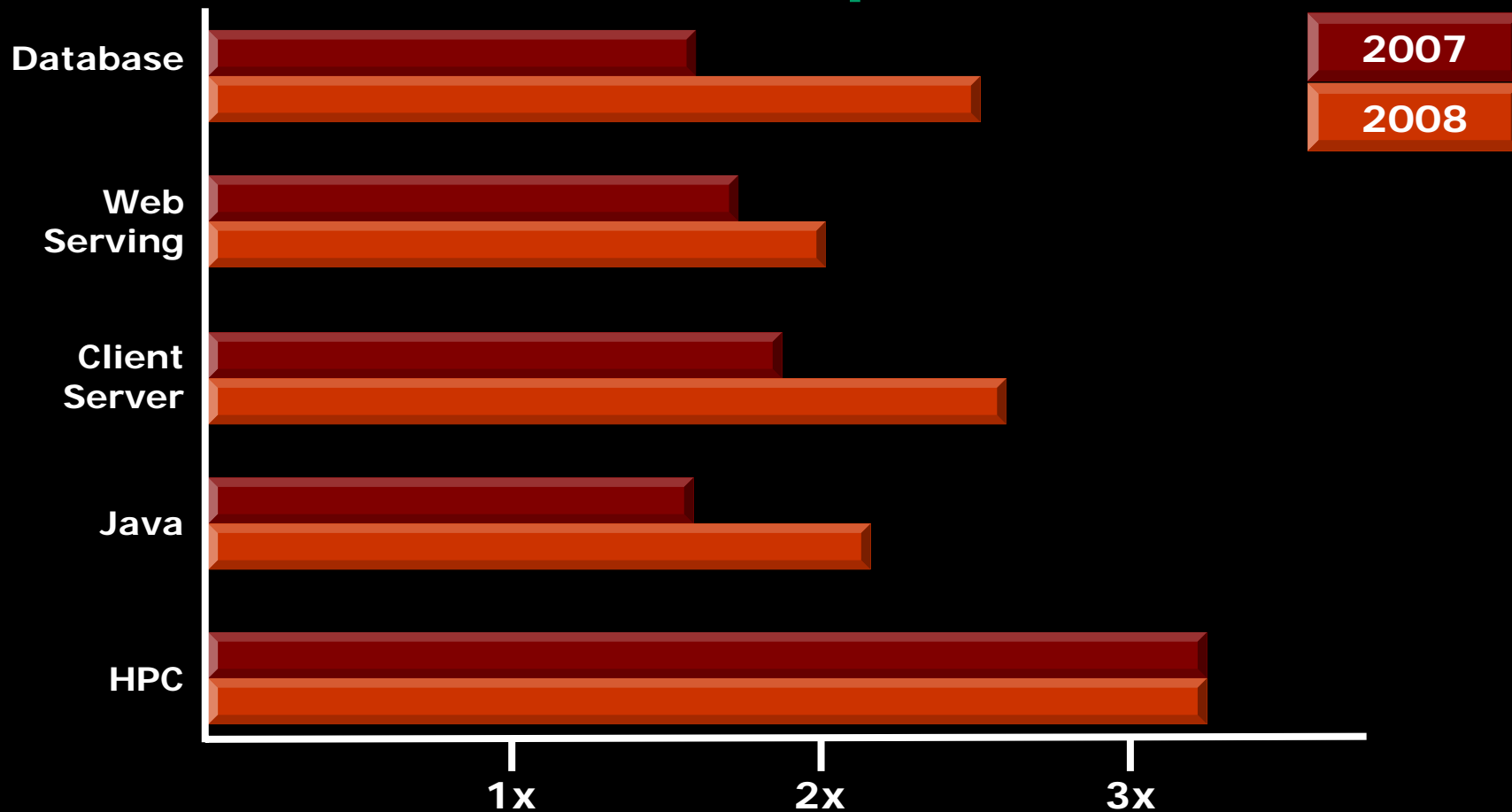
- Founding Member of The Green Grid
- Supported by U.S. EPA & Alliance to Save Energy
- Mission: Best Practices & Metrics



www.TheGreenGrid.org



Critical Performance Increases Where it Matters Most for Enterprises



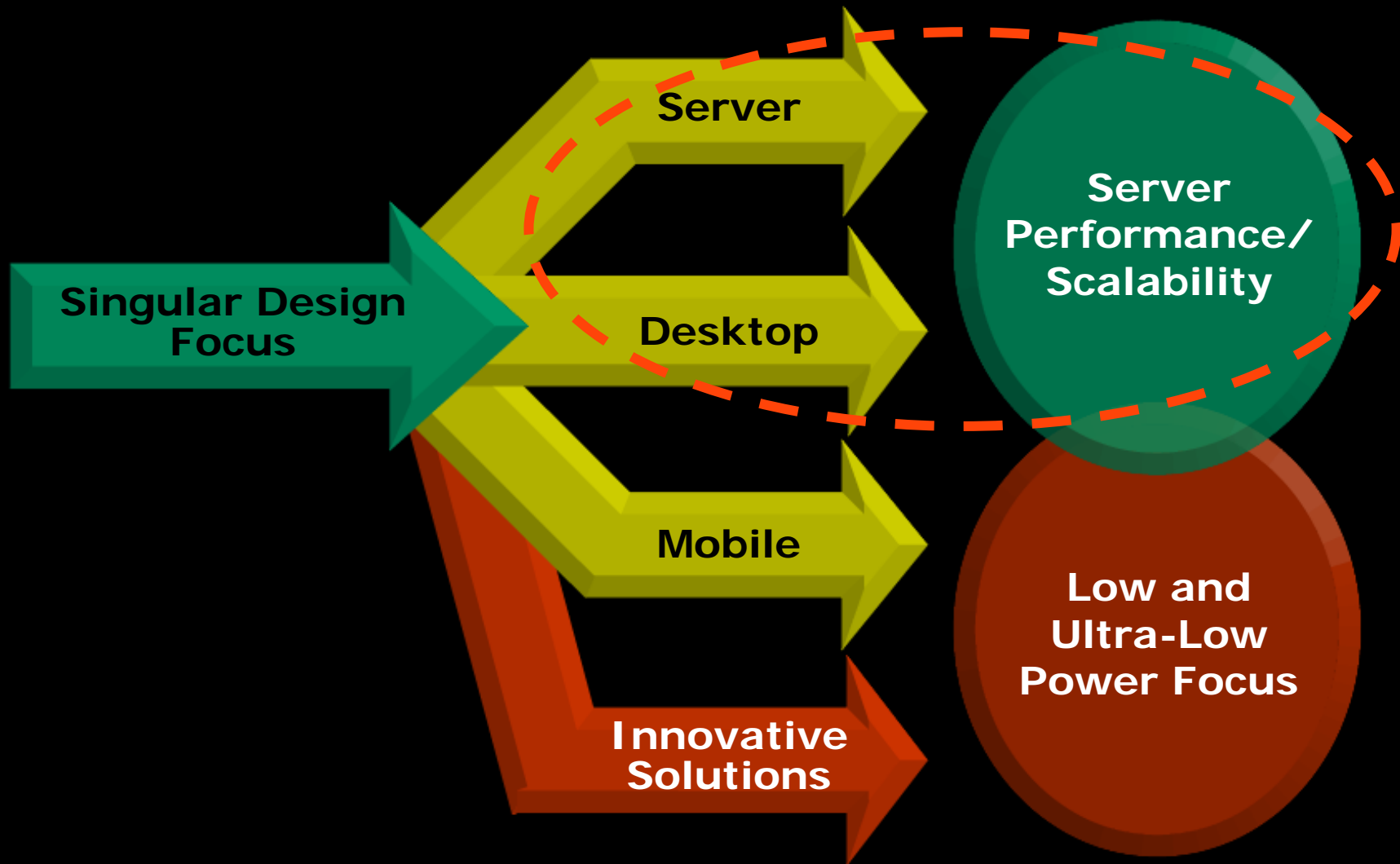
Application Performance Improvement

Performance projections based on modeling and a baseline of 2006 performance

Source: AMD planned



Diversifying Design Directions to Better Serve Customers and End-Users

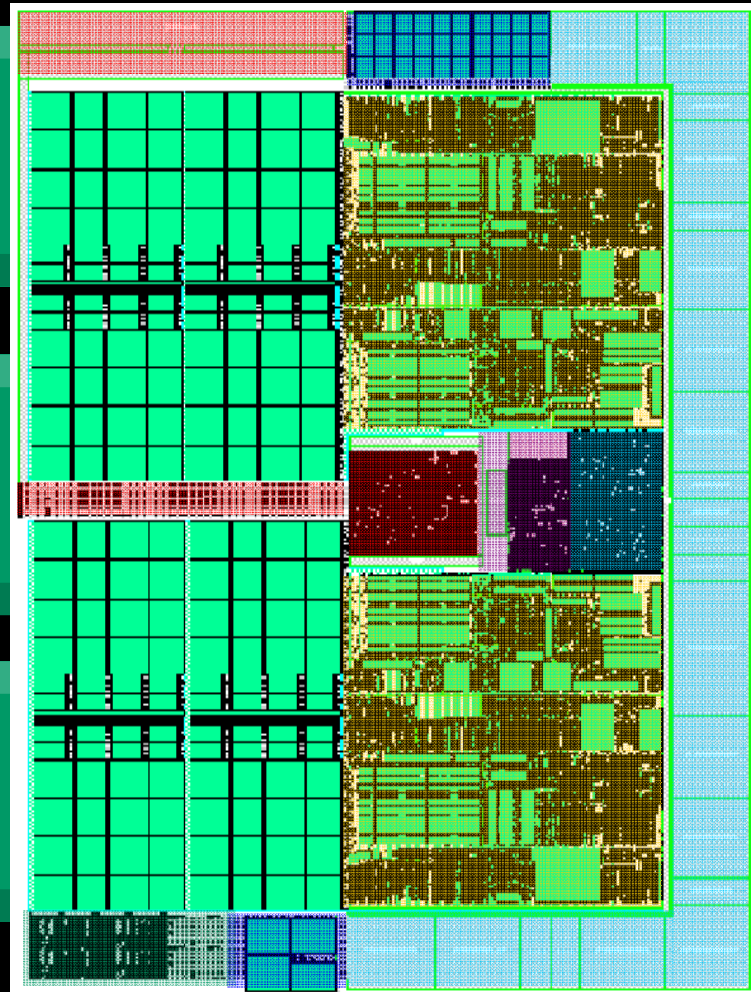


Power Efficiency Improvements in AMD's New Mobile Core

Split power planes
between cores and
on-die Northbridge

Mobile-optimized
on-die Northbridge

HyperTransport 3
with link power
management

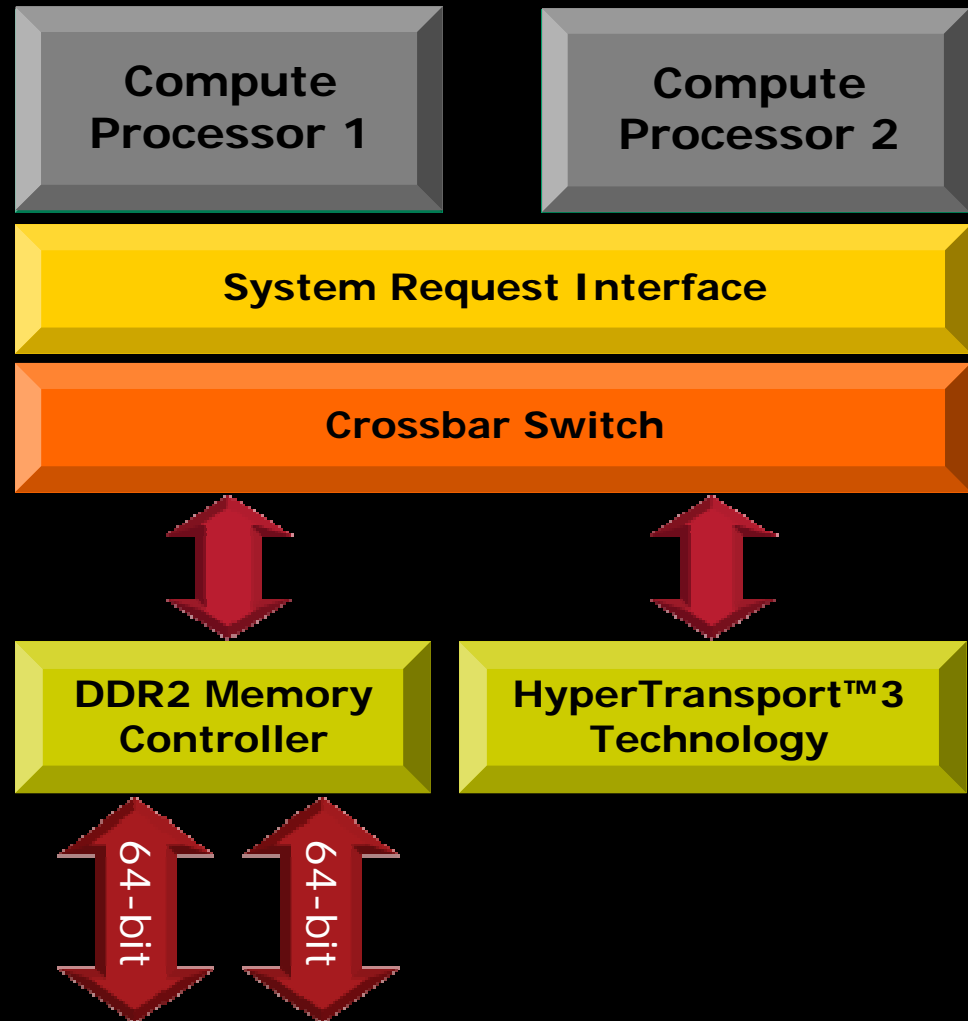


A Closer Look at Power Efficiency Improvements in New Design

Both cores can be stopped/started based on application need

HyperTransport throughput dynamically throttles based on core states

Two technologies work in concert to extend battery life



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Building and Expanding on “Partners in the Platform”

Best-of-breed
technology
creation and
advancement

Creating

Increased
differentiation
and solution
value

Creating

Market specific
optimization
and value-add

Creating

Building a foundation for industry-wide
architectural innovation

AMD64

Direct Connect Architecture



Diversity of Workloads and Opportunities for Specialized Processors

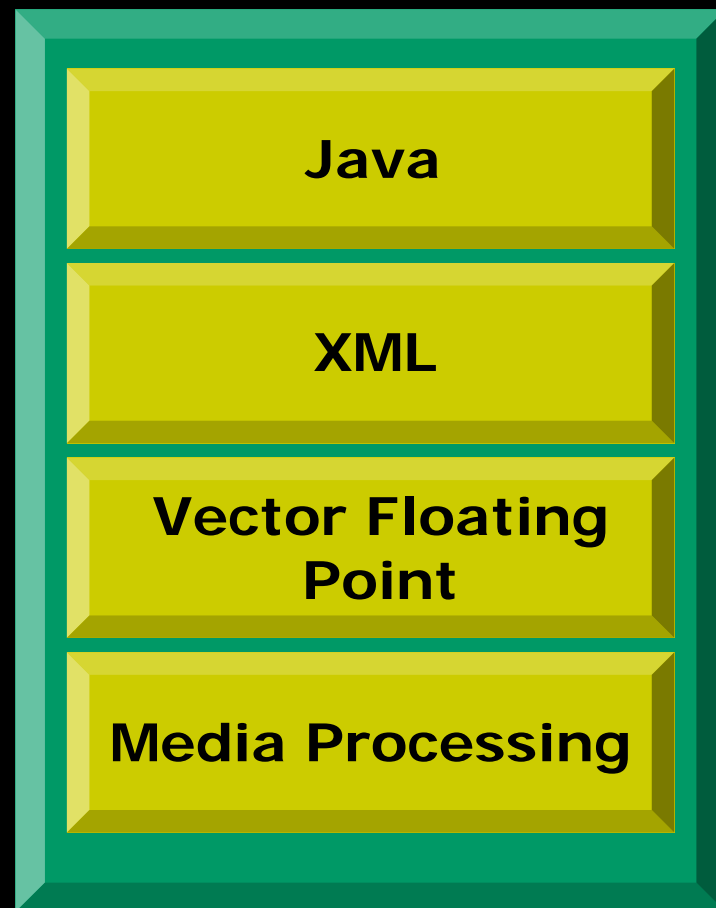
Excellent way to get power-efficient performance boosts

- Special-purpose, tuned solutions for common functions
- Drop to low-power states when not in use
- Enabled by Modern API's

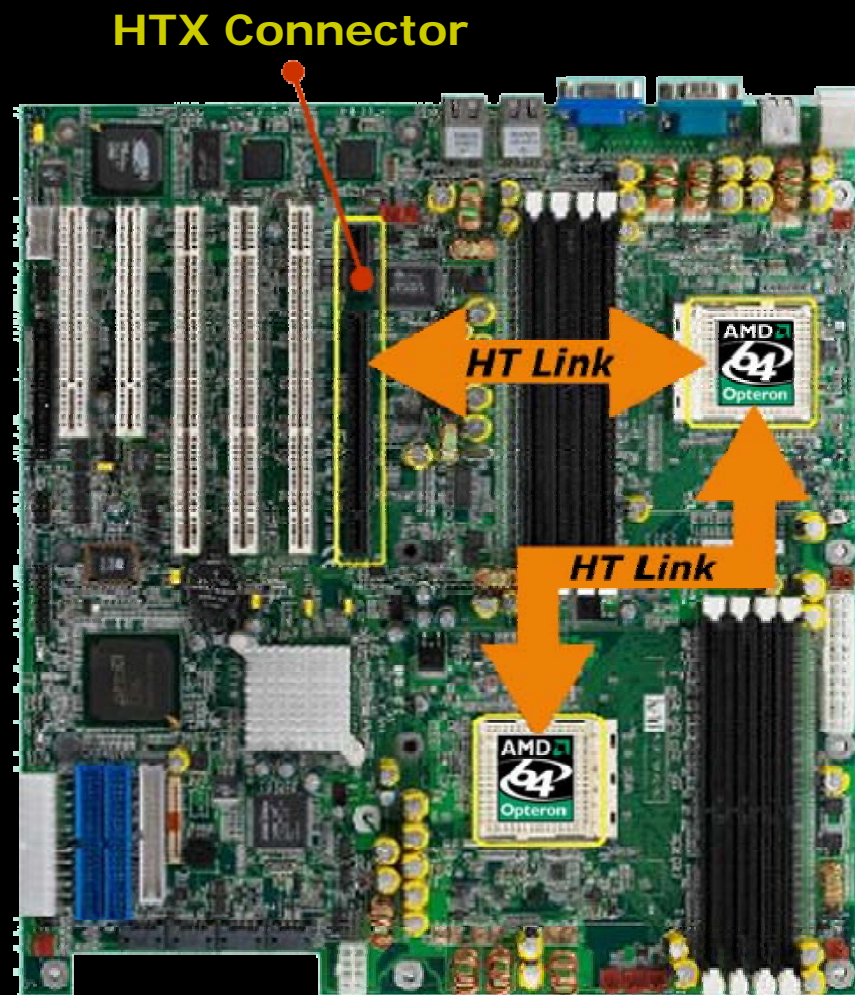
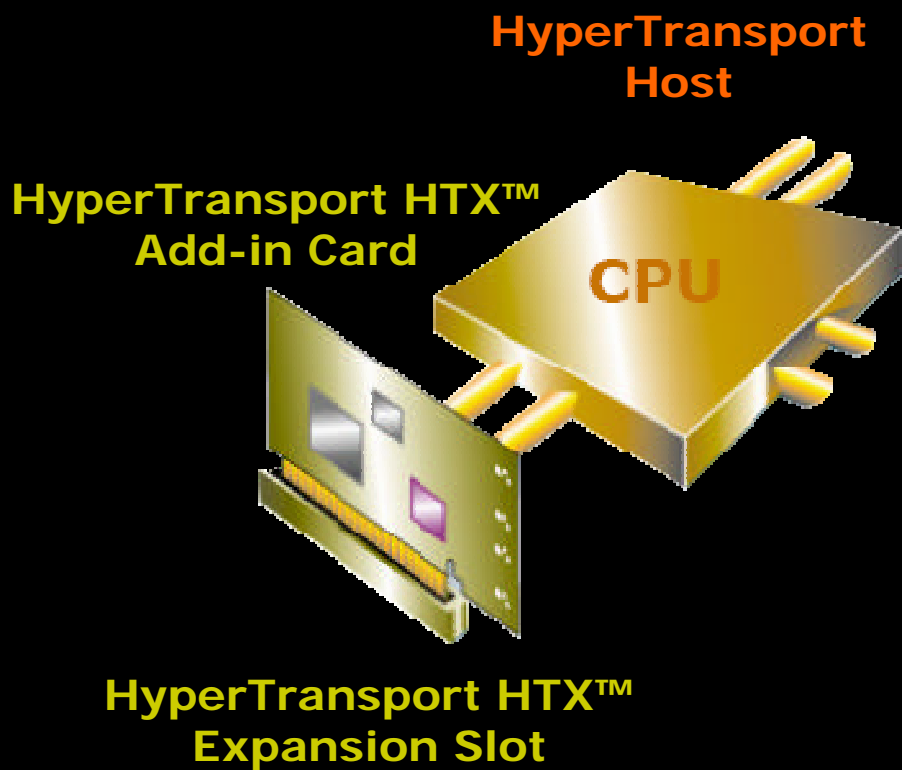
Aligns with modularity imperative

- Co-processor becomes another (optional) "IP block"
- Micro-architecture: Command delivery, Synchronization, Streaming

Many possible opportunities now, and in the future



Today: HyperTransport HTX™ Enables First-Generation System-level Co-processing



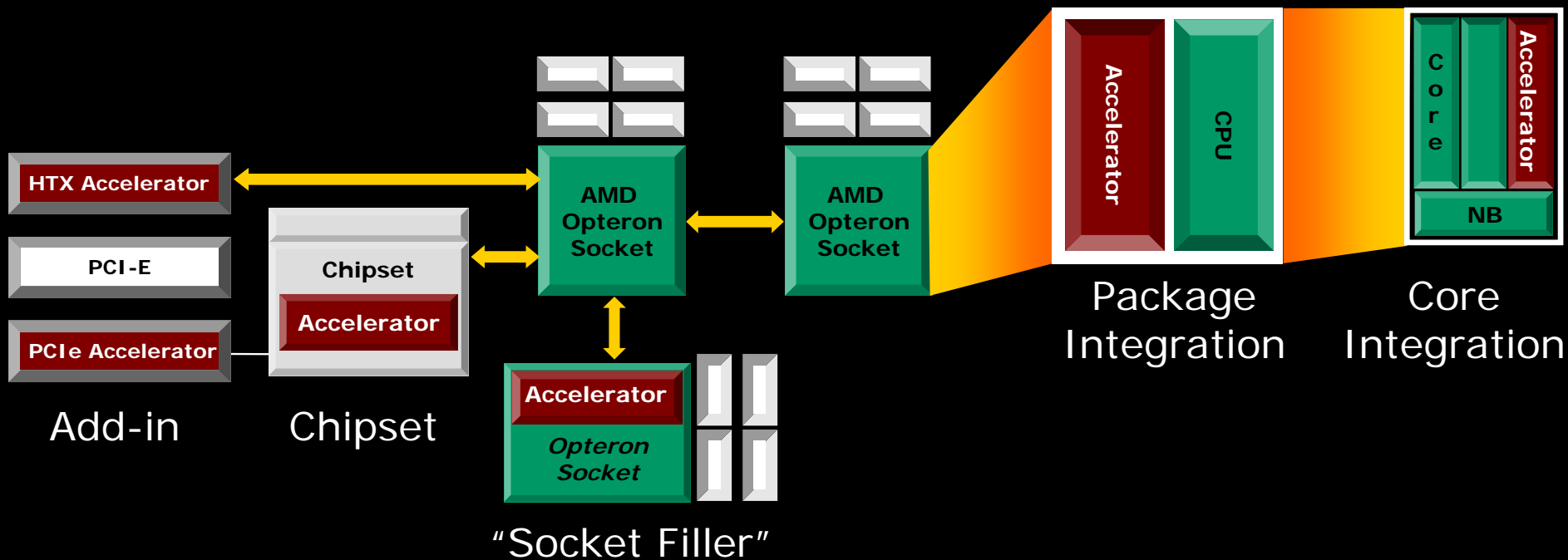
AMD64: The Innovation Platform



Torrenza

AMD gives the industry the first x86
customer-centric innovation platform

Torrenza Vision Map



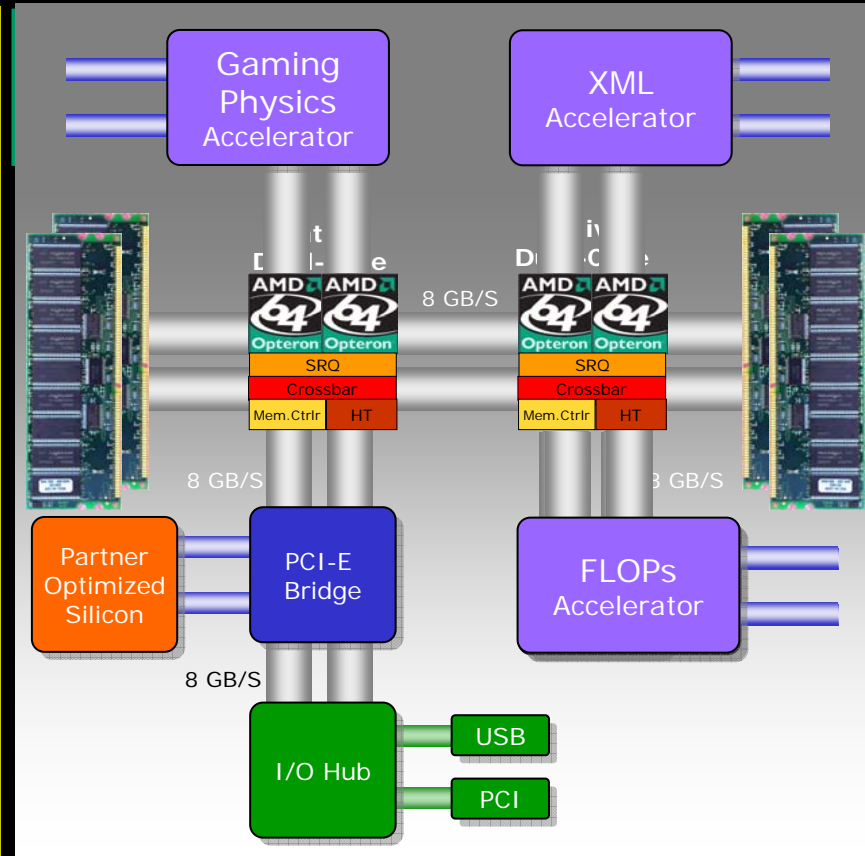
Increasing performance

Extending the Benefits of Direct Connect Computing

The shortest route
between two points
is a *Direct Path*...

Direct Connect Architecture
...when computing or
innovating.
Imagine It, Build It...

- HTX Slot
- Customer Centric Accelerators
 - Media
 - FLOPs, XML, Gaming Physics, etc.



Partnership Innovation

Torrenza: Enabling partners to build the most exciting solutions in history

Innovation Community



"Basing differentiated products on the best open platform on the market"

John Fowler, EVP Systems Group, Sun



"We support an open ecosystem that creates opportunity for innovation to benefit customers"

Rod Adkins, SVP, Systems & Tech Group, IBM



"Opens up a new way for HP to collaborate with our end customers"

Gary Campbell, CTO, Industry Standard Servers, HP



"Enables our Adaptive Supercomputing strategy, tailoring the computer to the problem."

Steve Scott, CTO, Cray

**Scalable
Systems**

**Next-Gen
Networking**

**Application
Acceleration**

**Development
Platforms**

Markets



Enterprise Technologies

Enablement

Telco

Media

Network Processing



Collaborative Leadership for Maximum Customer Benefit

Continued performance and power efficiency improvements

Fully leveraging AMD64 and Direct Connect Architecture

Extending the benefits of x86 compatibility and investment protection

Creating new opportunities for differentiation and value-add

Opening up the architecture to benefit the entire ecosystem

AMD64: The innovation platform.



